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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,656	02/07/2002	Eric M. Prophet	269/132	3328

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EXAMINER

LOKE, STEVEN HO YIN

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 11/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/072,656

Applicant(s)

PROPHET, ERIC M.

Examiner

Steven Loke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-15,17-26,39 and 40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,11-15,17-20,25,26,39 and 40 is/are rejected.
- 7) ☒ Claim(s) 7-10 and 21-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 16.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-6, 12-15, 17-20, 26, 39 and 40 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Noguchi et al. (Japanese application no. 10-196112).

In regards to claim 1, Noguchi et al. show all the elements of the claimed invention in figs. 11-17. It is a Micro-Electro-Mechanical System (MEMS) apparatus, comprising: a substrate [16']; a passivation layer [16] on the substrate [16'], the passivation layer having a top surface; and a microstructure (the electric conduction film [8]) suspended above the substrate [11] (the state which the film [8] bent upward), the microstructure having a bottom surface facing the top surface of the passivation layer [16], the microstructure [8] being moveable toward the passivation layer [16] (the state which the film [8] bent downwards); wherein the passivation layer [16] is patterned to form a plurality of spaced protuberances (figs. 12 (a) and 12(b) show the layer [16] having a first portion formed on the left side of layer [15] and is spaced from a second portion formed on the right side of layer [15]).

In regards to claim 3, Noguchi et al. inherently disclose the bottom surface of the microstructure is substantially flat at one instance when the film [8] moving downwards from the upward position.

In regards to claim 4, Noguchi et al. further disclose at least one of the protuberances has a square cross section.

In regards to claim 5, Noguchi et al. further disclose at least one of the protuberances has a rectangular cross section.

In regards to claim 6, Noguchi et al. further disclose at least one of the protuberances has a hexagonal cross section.

In regards to claim 12, Noguchi et al. further disclose the passivation layer [16] comprises silicon nitride (paragraph [0097] of the English translation of Noguchi et al.).

In regards to claim 39, Noguchi et al. further disclose the passivation layer [16] is made of silicon oxide (paragraph [0097] of the English translation of Noguchi et al.).

In regards to claim 13, Noguchi et al. show all the elements of the claimed invention in figs. 11-17. It is a Micro-Electro-Mechanical System (MEMS) apparatus, comprising: a substrate [16']; a passivation layer [16] on the substrate [16'], the passivation layer having a top surface; a support [5, 6, 13] (the support on the left side of fig. 11(b)) attached to the substrate [16']; and a beam (the electric conduction film [8]) attached at one end to the support and suspended above the substrate [16'] (the state which the film [8] bent upward), the beam having a bottom surface facing the top surface of the passivation layer [16], the beam [8] being moveable toward the passivation layer [16] (the state which the film [8] bent downwards); wherein the passivation layer [16] is patterned to form a plurality of spaced protuberances (figs. 12 (a) and 12(b) show the layer [16] having a first portion formed on the left side of layer [15] and is spaced from a second portion formed on the right side of layer [15]).

In regards to claim 14, Noguchi et al. further disclose a second support (the support on the right side of fig. 11(b)) attached to the substrate and wherein the beam is attached to the second support at a second end.

In regards to claim 15, Noguchi et al. further disclose a bottom electrode [15] on the substrate [16'] and underneath the bottom surface of the beam.

In regards to claim 17, Noguchi et al. inherently disclose the bottom surface of the beam is substantially flat at one instance when the film [8] moving downwards from the upward position.

In regards to claim 18, Noguchi et al. further disclose at least one of the protuberances has a square cross section.

In regards to claim 19, Noguchi et al. further discloses at least one of the protuberances has a rectangular cross section.

In regards to claim 20, Noguchi et al. further discloses at least one of the protuberances has a hexagonal cross section.

In regards to claim 26, Noguchi et al. further discloses the passivation layer [16] comprises silicon nitride (paragraph [0097] of the English translation of Noguchi et al.).

In regards to claim 40, Noguchi et al. further disclose the passivation layer [16] is made of silicon oxide (paragraph [0097] of the English translation of Noguchi et al.).

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi et al.

In regards to claims 11 and 25, Noguchi et al. differ from the claimed invention by not showing the passivation layer comprises polyimide. It would have been obvious for the passivation layer comprises polyimide, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. In re Leshin, 125 USPQ 416.

5. Claims 7-10 and 21-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: The major difference in the claims not found in the prior art of record is the passivation layer is patterned to form a mesh.

7. Applicant's arguments with respect to claims 1 and 13 have been considered but are moot in view of the new ground(s) of rejection.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Loke whose telephone number is (703) 308-4920. The examiner can normally be reached on 7:50 am to 5:20 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703) 308-1690. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

sl
November 25, 2003

Steven Loke
